

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 05-029228

(43)Date of publication of application : 05.02.1993

(51)Int.Cl.

H01L 21/205
// C30B 29/40
C30B 29/48

(21)Application number : 03-236933

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(22)Date of filing : 26.08.1991

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(30)Priority

Priority number : 02231413
03135670

Priority date : 31.08.1990
10.05.1991

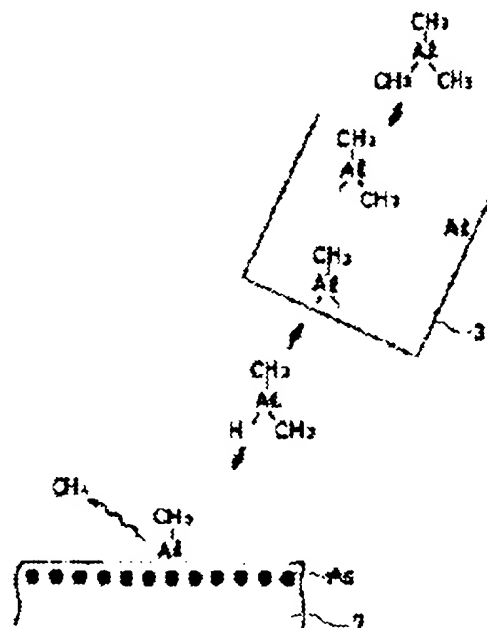
Priority country : JP
JP

(54) ATOMIC LAYER CRYSTAL DEPOSITION METHOD AND DEVICE

(57)Abstract:

PURPOSE: To improve the adsorption efficiency at low temperature thereby enabling the title atomic layer crystal deposition of a compound semiconductor conventionally unrealizable to be made feasible by a method wherein at least one alkyl radical coupler coupled with a metal before the molecules to be deposited reach a substrate is thermal-dissociated to be fed to the substrate to be deposited using the alkyl radical molecules.

CONSTITUTION: $(\text{CH}_3)_3\text{Al}$ having the self deposition stopping function passes through a quartz tube 3 to be thermal-dissociated into $-(\text{CH}_3)_2\text{Al}$, $-(\text{CH}_3)\text{Al}$, Al atoms. At this time, the Al atoms stick to the inner wall of the quartz tube 3 while the couplers of $-(\text{CH}_3)_2\text{Al}$ are coupled with hydrogen to be a stable $\text{H}(\text{CH}_3)_2\text{Al}$ compound. On the other hand, $-(\text{CH}_3)\text{Al}$ is also coupled with hydrogen atoms but to be so unstable compound that $-(\text{CH}_3)\text{Al}$ may be changed into $\text{H}(\text{CH}_3)_2\text{Al}$. Accordingly, the hydrogen of the $(\text{CH}_3)_2\text{Al}$ reaching the substrate 7 surface is dissociated when Al reacts to As on the substrate surface so that Al and As may be easily coupled with each other into a compound at relatively low temperature. Through these procedures, the title atomic layer crystal deposition of a compound semiconductor conventionally unrealizable can be made feasible.



LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Number of appeals against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extension of right]